

Solving Systems Using Elimination

Addition property of Equality

If $a = b$ and $c = d$ Then $a + c = b + d$

$$\begin{array}{r} 2x + 3y = 11 \\ -2x + 9y = 1 \end{array}$$

$$12y = 12$$

$$y = 1$$

$$2x + 3(1) = 11$$

$$x = 4$$

$$(4, 1)$$

p. 390 #1

$$2x + 5y = 17$$

$$6x - 5y = -9$$

$$8x = 8$$

$$x = 1$$

$$2(1) + 5y = 17$$

$$y = 3$$

$$(1, 3)$$

$$\#3 \quad 2x - 3y = 61$$

$$-2x + y = 7$$

$$-4y = 68$$

$$y = -17$$

$$2x + (-17) = -7$$

$$+17 \quad +17$$

$$2x = 10$$

$$x = 5$$

$$(5, -17)$$

Multiplying One Equation

$$\begin{aligned} 5(3x + 6y) &= (-6)5 \\ 3(-5x - 2y) &= (-14)3 \end{aligned}$$

$$\begin{array}{r} -14 \\ \times 3 \\ \hline -42 \end{array}$$

$$\begin{aligned} 15x + 30y &= -30 \\ -15x - 6y &= -42 \end{aligned}$$

$$\begin{array}{r} 24y = -72 \\ \hline 24 \quad 24 \end{array}$$

$$y = -3$$

$$3x + 6(-3) = -6$$

$$\begin{array}{r} 3x + -18 = -6 \\ +18 \quad +18 \end{array}$$

$$\begin{array}{r} 3x = 12 \\ x = 4 \end{array}$$

$$(4, -3)$$

p. 391 #9

$$\begin{aligned} 4(3x - 10y) &= (-25)4 \\ 4x + 40y &= 20 \end{aligned}$$

$$12x - 40y = -100$$

$$4x + 40y = 20$$

$$16x = -80$$

$$2x = -10$$

$$x = -5$$

$$(-5, 1)$$

$$3(-5) - 10y = -25$$

$$\begin{array}{r} -15 - 10y = -25 \\ +15 \end{array}$$

$$-10y = -10$$

$$y = 1$$